



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

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### **CERTIFIED MAIL RETURN RECEIPT REQUESTED**

July 22, 2016

Josh Abrams  
Doosan Fuel Cell America, Inc.  
195 Governor's Highway  
South Windsor, CT 06074

**RE: PETITION NO. 1235** – Doosan Fuel Cell America, Inc. petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of a 440-kilowatt customer-side combined heat and power fuel cell facility to be located at Middletown High School, 200 La Rosa Lane, Middletown, Connecticut.

Dear Mr. Abrams:

At a public meeting held on July 21, 2016, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need, with the following conditions:

1. Use of off-road construction equipment that meets the latest EPA or California Air Resources Board standards, or in the alternative, equipment with the best available controls on diesel emissions, including, but not limited to, retrofitting with diesel oxidation catalysts, particulate filters and use of ultra-low sulfur fuel;
2. Compliance with the provisions of Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies that limit the idling of mobile sources to 3 minutes;
3. Installation of an anti-climb security fence;
4. Approval of any minor project changes be delegated to Council staff;
5. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;
6. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Town of Middletown;
7. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;



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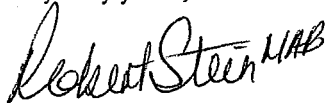
Affirmative Action / Equal Opportunity Employer

8. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;
9. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and
10. If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition, dated June 14, 2016, and supplemental information dated June 24, 2016, and June 29, 2016, and in compliance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Robert Stein" with a stylized flourish at the end.

Robert Stein  
Chairman

RS/RDM/cm

Enclosure:      Staff Report dated July 21, 2016

c: The Honorable Daniel T. Drew, Mayor, City of Middletown  
Michiel Wackers, AICP, Director of Planning, City of Middletown

**Petition No. 1235**  
**Doosan Fuel Cell America, Inc.**  
**Middletown High School, 200 La Rosa Lane**  
**Middletown, Connecticut**

**Staff Report**  
**July 21, 2016**

On June 16, 2016, the Connecticut Siting Council (Council) received a petition from Doosan Fuel Cell America, Inc. (Doosan) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the installation of a 440-kilowatt (kW) combined heat and power fuel cell facility at the Middletown High School, located at 200 La Rosa Lane, Middletown, Connecticut. The proposed installation would replace an existing 200 kW fuel cell that was approved by the Council in 2007 under Petition No. 810.

Although Doosan indicated in the Petition that it provided notification to appropriate agencies, entities and abutting landowners, prior to submission of the Petition to the Council, the Council deemed the Petition incomplete because it did not include a clearly labeled abutters' map and did not include notice to certain agencies. On or about June 24, 2016, Doosan provided proper notice and corrected the noted filing deficiency. The Council has not received any comments regarding the project to date.

The existing 200 kW fuel cell was installed adjacent to the west side of the high school. Doosan would remove the old fuel cell and enlarge the footprint area to include two concrete pads to house the proposed 440 kW fuel cell (28.6 feet long by 8.3 feet wide by 9.9 feet high) and an associated cooling module (15.9 feet long by 7.8 feet wide by 6.0 feet high). The fuel cell and cooling module would be enclosed by a seven-foot tall chain link fence of two-inch mesh and would include bollard protection to prevent accidental vehicle impacts to fuel cell infrastructure. Utility connection to the fuel cell facility would extend underground between the fenced compound and the school building.

The fuel cell would provide some of the electric needs of the school as well as utilizing waste heat to heat the swimming pool and to preheat water entering the school's boiler system. In the event that school electric loads are light, the facility would be able to export surplus power to the local electric distribution network. The fuel cell would also provide backup power to the school during a power outage and would enable the City to use the school as an assembly area during emergencies.

The fuel cell uses non-combustion phosphoric acid technology that consumes natural gas as fuel and uses water for fuel processing to generate electrical power. The cooling module would remove waste heat from the fuel cell on an as needed basis. No hazardous wastes are created during the process. During consumption of natural gas, sulfur that is used as an odorant in the natural gas would be removed, creating zinc sulfide as a nonhazardous byproduct that is collected within a sealed vessel in the fuel cell unit. The vessel would be removed at the fuel cell unit's end life and shipped to the catalyst vendor for recycling.

The facility would be remotely monitored by Doosan on a 24/7 basis to detect abnormalities in operation. The fuel cell facility is designed in accordance with American National Standards Institute and Canadian Standards Association America FC 1-2004 for stationary fuel cell power systems and includes extensive safety control systems, including both automatic and manual shutdown mechanisms that comply with pertinent engineering standards. The Petition includes a facility Emergency Response Plan.

The fuel cell facility would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards. The project would not be located within a DEEP-designated Aquifer Protection Area. The proposed site is located outside of designated 100-year and 500-year flood zones. The proposed project is located in paved parking area and would not impact any wetlands or any species listed on the DEEP Natural Diversity Database.



Due to its low emission profile, and pursuant §22a-174-42 of the Regulations of Connecticut State Agencies (RCSA), the proposed fuel cell facility is exempt for Connecticut air permitting requirements. Air emissions produced during fuel cell operation are as follows:

Comparison of the Fuel Cell Facility with RCSA Criteria		
Compound	Fuel Cell Facility (lbs/MWh)	
NO <sub>x</sub>	0.01	
PM <sub>10</sub>	Negligible	
CO <sub>2</sub>	495 with waste heat recovery	1,049 Without waste heat recovery
		1,650

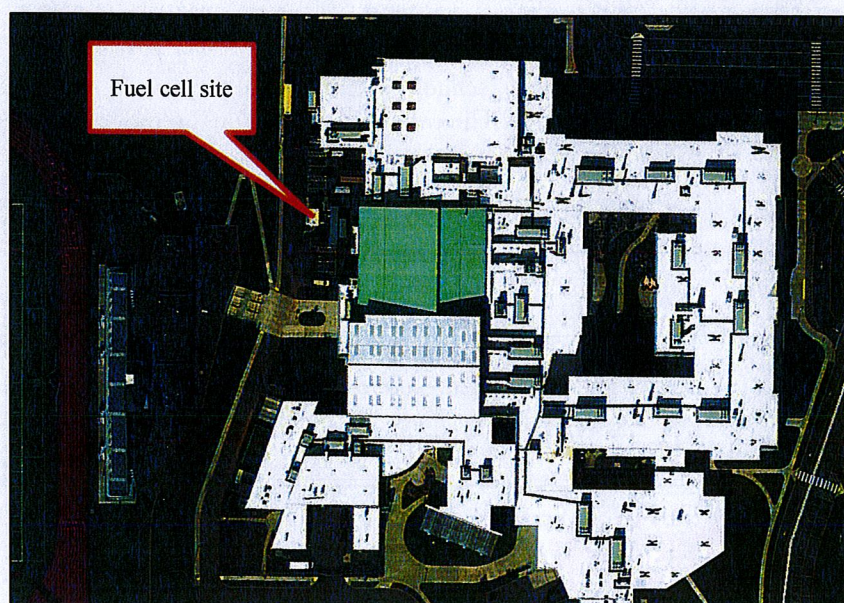
The project would result in a net carbon dioxide reduction for the environment because it would displace some of the need for baseload generation which includes traditional fossil-fueled generation. In total, the proposed facility would reduce net CO<sub>2</sub> emissions for the environment by roughly 120 metric tons per year. With regard to non-CO<sub>2</sub> greenhouse gases, as defined in RCSA Section 22a-174-1(49), the proposed facility would emit no methane (CH<sub>4</sub>), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons or perfluorocarbons.

Visual impact from the proposed facility would be minimal due to its low height and location adjacent to the school building. The proposed facility would comply with DEEP noise regulations during operation.

Doosan anticipates construction commencing in early August 2016 with completion by the end of January 2017. Construction work hours would be coordinated with the school.

If the Petition is approved, staff suggests including the following conditions:

- Use of off-road construction equipment that meets the latest EPA or California Air Resources Board standards, or in the alternative, equipment with the best available controls on diesel emissions, including, but not limited to, retrofitting with diesel oxidation catalysts, particulate filters and use of ultra-low sulfur fuel;
- Compliance with the provisions of Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies that limit the idling of mobile sources to 3 minutes;
- Installation of an anti-climb security fence; and
- Approval of any minor project changes be delegated to Council staff.



Proposed location of fuel cell.